

CLAIMS:

1. A rotor core comprising a plurality of rotor laminations, each of said laminations having an outer periphery, a first set of rotor laminations comprising a plurality of slots having skew portions extending in a first direction, a second set of
5 said rotor laminations comprising a plurality of slots having skew portions extending in a second direction, and a plurality of notches having an open end at said outer periphery and substantially aligned and coextensive with at least one of said skew portions.

2. A rotor core in accordance with Claim 1 wherein each of said notches
10 extends axially with respect to a center axis of said rotor core.

3. A rotor core in accordance with Claim 2 wherein each of said notches is coextensive with a respective one of said slots.

4. A rotor core in accordance with Claim 1 wherein each of said notches extend axially with respect to a center axis of said rotor core and along an entire
15 length of said core.

5. A rotor core in accordance with Claim 1 wherein each of said notches extend axially with respect to a center axis of said rotor core and along a portion of said core.

6. A rotor core in accordance with Claim 1 wherein a bridge of
20 lamination material extends between at least one of said notches and a respective one of said slots.

7. A rotor core in accordance with Claim 1 wherein no bridge of lamination material extends between at least one of said notches and a respective one of said slots.

8. A rotor core in accordance with Claim 1 wherein at least one of said notches has a substantially rectangular cross sectional shape.

9. A rotor core in accordance with Claim 1 wherein at least one of said notches has an irregular cross sectional shape.

5 10. A rotor core in accordance with Claim 1 wherein a first notch is substantially aligned and coextensive with one of said skew portions of one of said slots in said first set of rotor laminations, and a second notch is substantially aligned and coextensive with one of said skew portions of one of said slots in said second set of rotor laminations.

10 11. A rotor core in accordance with Claim 1 wherein a first notch is substantially aligned, for at least a portion of length of said first notch, with one of said skew portions of one of said slots in said first set of rotor laminations, and a second notch is substantially aligned, for at least a portion of a length of said second notch, with one of said skew portions of one of said slots in said second set of rotor
15 laminations.

12. A rotor core in accordance with Claim 1 wherein each of said slots comprises radially inner portions, and each of said notches is substantially aligned with a radial axis of one of said slot radial inner portions.

20 13. A rotor core in accordance with Claim 1 further comprising a third set of rotor laminations comprising a plurality of slots having skew portions extending in the first direction.

14. A rotor for an electric motor, said rotor comprising:

25 a rotor core comprising a plurality of rotor laminations, each of said laminations having an outer periphery, a first set of rotor laminations comprising a plurality of slots having skew portions extending in a first direction, a second set of

said rotor laminations comprising a plurality of slots having skew portions extending in a second direction, a plurality of notches having an open end at said outer periphery and substantially aligned and coextensive with at least one of said skew portions, and a central rotor shaft opening;

5 a rotor shaft having an axis which is coaxial with a rotor core axis of rotation and extending through said central rotor shaft opening;

 a plurality of secondary conductors extending through said slots; and

 a plurality of permanent magnets located in said lamination notches.

10 15. A rotor in accordance with Claim 14 wherein each of said notches extend axially with respect to a center axis of said rotor core and along an entire length of said core.

 16. A rotor in accordance with Claim 14 wherein each of said notches extend axially with respect to a center axis of said rotor core and along a portion of said core.

15 17. A rotor in accordance with Claim 14 wherein a bridge of lamination material extends between at least one of said notches and a respective one of said slots.

 18. A rotor in accordance with Claim 14 wherein no bridge of lamination material extends between at least one of said notches and a respective one of said slots.

20 19. A rotor in accordance with Claim 14 wherein a first notch is substantially aligned and coextensive with one of said skew portions of one of said slots in said first set of rotor laminations, and a second notch is substantially aligned and coextensive with one of said skew portions of one of said slots in said second set of rotor laminations.

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20. A rotor in accordance with Claim 14 wherein a first notch is substantially aligned, for at least a portion of length of said first notch, with one of said skew portions of one of said slots in said first set of rotor laminations, and a second notch is substantially aligned, for at least a portion of a length of said second notch, with one of said skew portions of one of said slots in said second set of rotor laminations.

21. An electric motor, comprising:

a stator comprising a stator core, first and second main windings, said first main winding configured to form a lower number of poles than said second main winding, said stator core forming a stator bore; and

a rotor comprising a rotor shaft concentrically arranged axially of said stator core, a rotor core positioned concentrically with said rotor shaft and attached thereto, said rotor core comprising a plurality of rotor laminations, each of said laminations having an outer periphery, a first set of rotor laminations comprising a plurality of slots having skew portions extending in a first direction, a second set of said rotor laminations comprising a plurality of slots having skew portions extending in a second direction, a plurality of notches having an open end at said outer periphery and substantially aligned and coextensive with at least one of said skew portions, a plurality of secondary conductors extending through said slots, and a plurality of permanent magnets located in said lamination notches and magnetized to form a number of poles equal to the number of poles formed by said second main winding.

22. An electric motor in accordance with Claim 21 wherein a first notch is substantially aligned and coextensive with one of said skew portions of one of said slots in said first set of rotor laminations, and a second notch is substantially aligned and coextensive with one of said skew portions of one of said slots in said second set of rotor laminations.

23. An electric motor in accordance with Claim 21 wherein a first notch is substantially aligned, for at least a portion of length of said first notch, with one of said skew portions of one of said slots in said first set of rotor laminations, and a second notch is substantially aligned, for at least a portion of a length of said second notch, with one of said skew portions of one of said slots in said second set of rotor laminations.